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Abstract

Fischer-Tropsch synthesis is performed using a compact catalytic reactor unit (10) defining channels in which is a gas-permeable catalyst structure (16), the channels extending between headers (18). The synthesis occurs in at least two stages, as the reactor unit provides at least two successive channels (14, 14a) for the Fischer-Tropsch synthesis connected by a header, the gas flow velocity through the first channel being sufficiently high that no more than 65% of the carbon monoxide undergoes conversion. The gases are cooled (25) in the header between the two stages, so as to condense water vapor, and then pass through the second channel at a sufficiently high gas flow velocity that no more than 65% of the remaining carbon monoxide undergoes conversion. This lowers the partial pressure of water vapor and so suppresses oxidation of the catalyst.